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Federal Metric Progress in 1993

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The federal agency focus on broad strategies for implementing metric use in business-related activities and on closer cooperation with industry has led to impressive gains.

Keywords: Federal agencies; metric; metric system; metric transition; metrication; SI

Introduction

During 1993, cooperation among the federal agencies on interagency issues led to more uniform metric transition approaches. Individually, agencies made significant progress in implementing metric use in their programs. However, the amount of progress by different agencies also showed significant variation.

Cooperative Progress

Cooperative initiatives among the federal agencies led to impressive results in 1993. The following are some examples.

Acquisition Guidelines. The interagency Metrication Operating Committee developed guidance on the use of the metric system in acquisitions by federal agencies. The guidance document, which was endorsed by the Interagency Council on Metric Policy, describes actions that should be taken by agency heads, planners, program officers, requisitioners, and procuring officials to implement metric use in federal acquisitions. The guidance also describes approaches to effect metric preference and to include metric use in acquisition documents. This guidance reinforces and supplements federal acquisition regulations.

Functional subcommittees. The Steering Group of the Metrication Operating Committee developed a set of deliverables for the interagency functional subcommittees. As a result, the subcommittees were reinvigorated and in some cases also redirected. Because of the growing recognition of the value--and necessity--for agencies to cooperate on common goals and shared problems, agencies renewed their commitments to the subcommittee process. Currently, the active subcommittees are Construction, Consumer Assistance, Financial Assistance, Fuel and Power, Health Care, Procurement and Supply, Public Education and Awareness, Small Business Assistance, Standards and Metric Practices, and Transportation.

Strategic Approach. The consensus of the representatives on the interagency council and the operating committee is that the metric transition program is not intended to be separate from everyday agency operations. Metric use is not independent of other important national issues. Therefore, the agencies' strategy is to incorporate the use of metric units into all administrative and programmatic functions that are measurement sensitive. Furthermore, agencies recognize that metric use must be an element of education, job creation, work force retraining, export promotion, competitiveness, and other important initiatives.

Public Affairs. A federal metric public affairs strategy was developed and coordinated through the metric committees and steering group. The objectives are to provide accurate information on federal metric policy, achievements, and plans; to include metric information in communications that involve federal policy issues, such as competitiveness, trade, technology development and commercialization, and education; and to include metric guidance in programs that provide assistance to industry.

Metric Transition Plan Revision. The federal agencies of the Metrication Operating Committee agreed to review and update their metric transition plans to reflect recent accomplishments. Most of the agencies' original plans were written in 1991.

Expanded Agency-Industry Cooperation. The federal agencies assisted industrial firms, especially small businesses, as well as trade and standards organizations, by consulting with them on metric use, by providing information on the use of the metric system, and by referring them to additional sources of information. The commercial construction industry is continuing its collaboration with federal agencies through the Construction Metrication Council, which is directed by the National Institute of Building Sciences. Already, a total of over $20 billion in metric federal construction is ongoing or completed; no problems or extra costs were reported due to metric use. Recently, the highway construction, paper, printing, surveying, and shipbuilding industries began discussions and collaborations with federal agencies to gain the benefit of a cooperative metric transition.

Federal Standard 376. The federal standard, *Preferred Metric Units for General Use by the Federal Government*, was approved by the agencies of the Metrication Operating Committee and was issued by the General Services Administration for use by all federal agencies [1]. The new federal standard, designated Fed Std 376B, is an improved version of the 1983 version that was designated 376A. The updated version contains guidance for federal and contractor personnel on using the modern metric system [2] and conversion factors among metric and nonmetric units.

Individual Agency Progress

As reported in 1992, the federal agencies are making significant progress to implement metric use in their programs [3]. The variation in progress among agencies is due primarily to the different degrees that agencies are involved with metric or metric-ready industries, the number of new initiatives in which agencies can initiate use of the metric system, and the amount of visible high-level leadership that is a key to full participation by agency employees. Nevertheless, there are new opportunities for metric use created by downsizing, new roles and missions for agencies, and defense conversion.

Although the federal agencies are making progress in applying the metric system to their activities, the overall effort is somewhat fragmented. In the annual metric reports provided by the agencies, there is an evident hesitation to set completion dates, especially where the completion of metric conversion involves decisions made by industry or involves other actions outside the control of the federal agencies. In addition, there is some hesitancy to take measures to encourage suppliers and clients where such measures might be perceived as "forcing" industry to change. The reports tend to elevate minor elements of the metric transition, such as employee training and incidental conversions. The interagency groups have not developed consensus strategies to maintain the emphasis on the important issues relating to industry.

The following agency summaries illustrate the federal agency metric transition effort by highlighting selected examples of accomplishments that were reported by the individual federal agencies. The summaries are representative of federal agency actions and are not an exhaustive description of the total progress.

Department of Agriculture (USDA). The Department of Agriculture established department-wide policy and assigned responsibilities for an orderly transition to use of the metric system. Department policy grants a general exemption from metric conversion for projects and programs that directly affect individual farmers. All other requests for waivers or exemptions are processed

in accordance with a metric waiver process. Most major programs that do not affect individual farmers directly are being converted or have plans to use metric units, usually in conjunction with inch-pound units.

Department of Commerce (DOC). The Department of Commerce is uniquely concerned with national economic and technical policies and objectives, including the federal metric transition for which DOC has leadership responsibilities. This year, the department led the development and acceptance of an interagency metric procurement policy, put into place annual progress reporting guidelines for all agencies, published a variety of assessment and metric-use reports, and continued to direct and facilitate the federal agency metric transition. In addition, the department disseminated a large amount of information about the federal agencies' metric transition, about metric conversion issues, and about the metric system of units and its use.

This year the department will adopt a new metric transition plan. The plan contains an overall framework and timetable for more detailed metric transition plans for the programs of the operating units. Metric use is being realistically integrated into operations.

The National Institute of Standards and Technology (NIST), the agency that performs the department's interagency metric leadership and coordination, has long been an advocate of the benefits of completing the transition to metric use in U.S. trade and commerce. Recently, NIST revised its internal metric transition plan, completed metric training for acquisition and contracts officials, established a metric procurement policy, and began designing a $150 million capital improvement project to metric specifications. NIST issued a variety of publications aimed at facilitating metric transition and maintained a database of metrication documents and references.

The National Oceanic and Atmospheric Administration issued metric guidelines for all line offices and will shortly issue procurement procedures for metric-preferred procurements. The specifications for two new research ships are being written in metric units; it is anticipated that the ships will be constructed to metric standards. Environmental satellite programs, weather research and information (except for final transfer to the general public), geodetic survey data, and nautical charts are already metric or are being converted.

The Minority Business Development Agency sent metric information packets to its Minority Business Development Centers and will soon run metric focus workshops across the U.S.

Department of Defense (DOD). A variety of metric-based and partly metric weapon systems and subsystems are in research, development, testing, and evaluation, or in production. Well known examples of new metric-predominant systems are the Army's RAH-66 Comanche helicopter (currently unfunded for production, but three prototypes are authorized), the T-45A Navy trainer, and the Navy's LX assault landing ship. Metric-based requirements have been developed and incorporated into specifications and standards. With input from industry and the standards community, DOD is continuing to develop, or often adopt from non-government sources, needed metric standards and specifications to support the procurement of metric material.

Military operations are largely conducted in metric units. Test, measurement, and diagnostic equipment largely use metric measurements. Virtually all grant programs now use metric units. DOD has significant and broadly based cooperative efforts with industry in the areas of construction, electronics, and fiber optics. DOD's Small and Disadvantaged Business Utilization Office participates actively in DOD metric planning and implementation efforts. Although DOD must continue to support a huge inventory of weapons systems and other military material that was designed and produced in the inch-pound system, DOD policy is to produce newly designed

military systems using metric units. Therefore, the extent of transition to metric equipment and material is dependent on approvals of new weapons programs and on industry capabilities and decisions that make commercial metric items available.

Department of Education. The Department of Education completed a metric transition plan and published metric acquisition regulations. The acquisition regulations are designed to foster use of the metric system in acquisition and to provide guidance to vendors. In the next year, the department will explore the feasibility of issuing metric preference regulations for grants and will feature articles in its publications about metric transition.

Through the National Education Goals, the department continues to explore strategies to encourage metric education in the Nation's schools. However, it is not authorized to require metric education and cannot become involved in mandating any area of curriculum.

Department of Energy (DOE). Metric transition planning in the Department of Energy is two tiered. The departmental plan addresses major transition issues and policies. The heads of all elements that report to the secretary have created, or are currently creating, more detailed implementation plans. Metrication (usually through the use of dual units) is being implemented in departmental publications, standards, procurement activities, design services, and other areas. A number of programs are working with industry to develop metric standards. For example, the Fossil Energy Program is working with the American Petroleum Institute. Most programs have initiated pilot metric construction projects. New projects that are initiated after January 1, 1994, will use metric units wherever possible. Most research and production activities already use metric units. Metric training classes are being held for both federal and contractor personnel. Internal and external awareness activities have been initiated. Existing nuclear facilities at certain sites are currently excepted because of safety concerns, planned decommissioning, and existing nonmetric regulations.

Department of Health and Human Services (DHHS). The Department of Health and Human Services established a Metric Transition Steering Committee to share department-wide metric accomplishments and ideas and to collect information on progress. Department organizational components are developing pilot metric construction projects and are including metric policy and procedures in certain training courses.

The Public Health Service (PHS) has the most direct and active involvement in metric conversion. The PHS Grants Policy Statement contains guidance for grantees requiring the use of metric units in proposals, reports, publications, and other documents relating to grants. Guidance for the use of metric units for contracts has been developed and incorporated in the DHHS General Administration Manual. Among the most visible department efforts in metric use are the regulations proposed by PHS's Food and Drug Administration to implement the metric nutritional and net-content labeling legislation. Most research in PHS, except for clinical research, uses metric measurements almost exclusively. The National Institutes of Health converted acquisition activities to metric use (typically using dual units), initiated a pilot metric project for the design and construction of a $950,000 animal center building addition, and began using the metric system as the measurement system for the Clinical Center.

Department of the Interior (DOI). The Department of the Interior metric transition plan was approved by DOI's metric executive. DOI bureaus are in the process of completing their individual metric transition plans. The Interior Metric Work Group addressed department-wide metric issues, coordinated metric transition efforts, and disseminated information on the activities of other agencies. The bureaus are making steady progress in using metric units in reports and

maps and are beginning to use the metric system in other activities. They are identifying measurement-sensitive programs and requirements to revise regulations, policies, manuals, standards, and publications. Schedules for completing revisions will be developed and implemented. Metric construction pilot projects and metric training are underway. Within the next year, implementation of bureau metric transitions plans will be well underway, revision of regulations and other measurement-sensitive items will continue, and the use of metric units in procurements and in grants will be well established. Many popular items such as handbooks, national park brochures, posters, and reports already use metric units.

The Geological Survey (GS) has long had a policy to encourage metric use in official technical products. The *GS Yearbook* and other popular publications have dual dimensions, and metric units are used extensively in program activities. Maps and digital map products in the 1:100,000 scale are produced using metric units; the 1:250,000 products are being converted. Progress continues on developing a capability to produce other digital map products in metric units.

Department of Labor (DOL). The Secretary of Labor issued an order affirming the goal of metric conversion and assigning responsibility for conversion. The Bureau of Labor Statistics surveys are currently using a dual system of units and respondents are able to use either metric or inch-pound measurements. Metric measurements will be implemented in publications as resources become available. The January 1993 issue of the *CPI Detailed Report* was the first to incorporate metric measurements. An Employment and Training Administration metric steering group was established and the metric system is being integrated into appropriate curricula at Job Corps centers. The Mine Safety and Health Administration encourages the use of metric units by providing guidance to the mining industry and facilitating conversion at the industry's pace, rather than requiring it through rule making. The current goal is to include equivalent metric units in rules and standards as alternative measures. The Occupational Safety and Health Administration's new and revised regulations have included metric equivalents since 1977, and all existing regulations will be converted to dual units during 1995.

Department of State. All Department of State overseas diplomatic construction is designed and constructed using metric specifications. Domestic acquisitions, contracts, and other business-related documents use metric units to the extent possible in accord with the department's metric system implementation guidelines. Contracting opportunities are advertised in metric measurements and a special metric notice was published in the *Commerce Business Daily*. A special notice on the metric transition program has also been included in the department's *Guide to Doing Business with the Department of State*.

The department's metric implementation guidelines contain procedures for metric-use waivers and require periodic progress reports from domestic and overseas contracting activities on metric accomplishments. The guidelines also promote metric considerations during the acquisition planning phase of larger contracts.

Department of Transportation (DOT). The department provided guidance to its operating administrations on metric conversion and coordinated their metric transition activities. Many of the modal administrations responded by issuing instructions for applicants, suppliers, and contractors on the use of the metric system in documents.

The Federal Highway Administration (FHWA) cooperated with the American Association of State Highway and Transportation Officials in converting design, construction, bridge, and material guides to metric specifications. FHWA led the development of the National Highway Institute's

metric training course. The Administration is converting highway reporting software to use metric units.

The National Highway Traffic Safety Administration (NHTSA) converted nineteen of its fifty-one Federal Motor Vehicle Safety Standards into draft metric standards and is preparing to obtain public comment prior to making them final rules. Conversion of the Fatal Accident Reporting System and the National Accident Sampling System is underway and is expected to be completed in 1994. NHTSA's Office of Traffic Safety Programs is preparing new traffic safety documents with dual units.

The Federal Aviation Administration (FAA) revised its procurement procedures to include use of metric units and issued guidance on the use of metric units in airport layout and construction. The administration will explore the introduction of metric units in aircraft specifications.

Coast Guard metric initiatives include requiring metric as well as inch-pound units in bridge permit drawings and in public notices for bridge projects. New ships are increasingly incorporating metric specifications.

Among the other administrations in the department, the Maritime Administration advised the industry of its intentions to design and procure new ship construction in metric units; the Federal Transit Administration initiated procurement action for software modifications to the local transit agency performance reporting system to allow for metric reporting capability; the Federal Railroad Administration is using the metric system as the primary measurement system for the National Maglev Initiative; the Research and Special Projects Administration published its metric conversion plans in the Federal Register in January 1993; and the Saint Lawrence Seaway Development Corporation began using dual units in bidding documents and in specifications for contracted engineering projects.

Department of the Treasury. The Department of the Treasury's economic and financial focus mean that its programs are generally not measurement sensitive. Nevertheless, the department has converted a variety of activities to metric use. For example, tariffs, trade information, drawings for facilities management, and some types of acquisitions have already been converted to metric use.

The Bureau of Engraving and Printing uses metric presses for currency and stamp production. The U.S. Mint makes some coins to metric specifications. Other coins, blank pieces, and tooling weights and dimensions will be converted to metric units by the end of this year. Specifications for purchases of metals are also being converted this year.

The Internal Revenue Service (IRS), the largest federal user of printing and publishing services (except for the Government Printing Office, which is in the legislative branch), is leading the federal transition to standard metric paper sizes. IRS chaired an interagency work group that developed recommendations for phased transition to metric printing and publishing. In 1992, IRS requested bids on two tax instruction publications in metric sizes, but the bids were unacceptably high. Another attempt at procuring metric-size tax publications will be made this year. IRS intends to convert to standard metric sizes as the capabilities of the printing and paper manufacturing industries allow.

IRS is collecting information on metric products from its vendors through a *Commerce Business Daily* notice and a direct survey. Metric analysis is required in all IRS acquisition plans.

Department of Veterans Affairs (VA). The Department of Veterans Affairs adopted policies and guidelines for cost-effective metrication programs. The department's metric plan and policy are intended to ensure that key officials use the metric system in procurements, grants, and other business-related activities. Also, key officials must establish a process for policy-level review of all requested exemptions and delays in metric use, encourage industry to change to the metric system, handle metric conversion costs as normal operating expenses, increase employee awareness and understanding of the metric system through training, and monitor and report on metric conversion activities.

The department implemented an extensive metric-awareness program that includes articles in VA publications and posters depicting "Victor the Valiant," the VA mascot. Metric measurements are included in all new or revised VA X-series specifications and commercial item descriptions. A metric product acceptability clause is included in procurements. It permits acceptance of metric products when their specifications fall within tolerances in standardization documents.

The Integrated Supply Management System incorporates metric product information as it becomes available. Procedures are in place for converting measurements in the Space Planning Criteria Handbook and the Equipment Guide List. VA supply depots have been buying metric tools and mechanics have been trained to use metric measurements. Dual units are used in transportation-related reports and in solicitations and catalogs for aids for the blind, hearing aids and accessories, flexible orthoses, and prosthetic socks. The National Acquisition Center identified specifications, procurement documents, purchase descriptions, supply schedules, medical equipment, drugs and pharmaceutical products, and subsistence program documents for conversion to metric units. Some Decentralized Hospital Computer Program modules already contain metric units, and others are being reviewed for conversion.

All VA elements have been informed of the commitment to metric conversion and are addressing appropriate actions. Metric units will be used in conjunction with nonmetric units for an interim period. The goal is metric-only use when industry and other clients of the VA are willing to complete the conversion.

Agency for International Development (USAID). The Agency for International Development uses metric units in its systems and procedures to the maximum extent practical. Metric requirements were implemented in most of the agency directives that contain measurement-sensitive items, and revision of the remaining directives will be completed by 1994. Standard metric paper sizes were adopted, and a schedule for converting paper stocks to metric size paper will be adopted by 1994. Twelve of the 28 measurement-sensitive agency forms have been revised to enable the reporting of data in metric or dual units, and the remaining forms will incorporate metric units in their next revisions. Articles on metric transition have been published in agency newsletters, and conversion tables were distributed to employees and published in the agency telephone directory. Training has been provided for the employees most affected by metric transition.

Central Intelligence Agency (CIA). The Central Intelligence Agency has an ongoing, disciplined plan to convert to metric use. All scheduled tasks in the plan to date have been met. Directorate metric advocates were trained and given a mandate to act as educators, mentors, and reviewing and approving officials for any requested exemptions.

Commodity Futures Trading Commission (CFTC). The commodity exchanges that are regulated by the Commodity Futures Trading Commission use measurement systems dictated by

prevailing commercial practices. The CFTC complies with General Services Administration schedules and regulations in its procurements.

Consumer Product Safety Commission (CPSC). The Consumer Product Safety Commission adopted the use of the metric system where it is feasible in procurements, except that procurement of items supplied by the General Services Administration is subject to its metric conversion. Because regulatory activities involve amending or modifying existing regulations that use inch-pound units or developing new regulations based upon unique data sources that use inch-pound units, metric conversion of programmatic activities is being addressed on an individual program basis.

Environmental Protection Agency (EPA). The Environmental Protection Agency relies on the metric system for the vast majority of its measurement-sensitive activities. Inch-pound units in some statutory and regulatory language and nonmetric data supplied by other sources currently limit the agency's complete conversion to metric use. The agency is drafting a Notice of Proposed Rulemaking to guide state and local governments in the use of metric units in EPA grants. The agency is exploring opportunities to extend its metric policy to all other grantees.

Federal Communications Commission (FCC). The Federal Communication Commission adopted regulations that completed, with two exceptions, the metric conversion of Title 47 of the Code of Federal Regulations. The two exceptions included rules that are based on nonmetric international standards, and rules that involve long-standing, nonmetric industry practices that have no impact on international trade. In addition, the FCC began work on a conversion plan for all databases, forms, instruction manuals, and bulletins.

Federal Maritime Commission. The Federal Maritime Commission's only measurement-sensitive activities involve tariffs. The Automated Tariff Filing and Information System will permit users to make calculations using either metric or inch-pound units.

Government Printing Office (GPO). The Government Printing Office conducted a survey of federal agencies to determine the level of preparedness for using standard metric paper sizes in printing and publishing. In addition, GPO informed its printing contractors of the phased transition to metric-size printing and publishing that has already begun in some federal agencies. GPO currently stocks and sells standard-size metric paper and provides metric-size printed products in response to requests by federal agencies. GPO's work force is being trained and familiarized with the metric system.

General Services Administration (GSA). A new General Services Administration directive revises the agency's metric policy and provides additional direction for using the metric system in procurements, grants, and business-related activities. It also establishes procedures for reviewing and approving requested exceptions to metric use.

GSA's Federal Supply Service (FSS) completed its review of 2,857 federal product description documents to identify the metric status of those that are measurement sensitive. Three hundred thirty-five documents were converted to metric use, eighty-two were classified non-measurement sensitive, and ninety-three were canceled. Eighteen more are scheduled for conversion in the immediate future. The remaining documents are scheduled to be converted to metric measurements over the next five years. FSS is also surveying and advising suppliers of its plans to convert to the metric system. Over seventy such contacts have been made. Typically, firms report that

they have few metric products but that using metric units to describe existing nonmetric products ("soft" conversion) is acceptable.

GSA's Public Building Service is a leader in initiating metric construction projects. Over $1 billion of GSA construction projects have been proposed to start before the milestone date of January 1, 1994. Several metric projects were completed at or below projected cost, on schedule, and with fewer errors than expected for similar nonmetric projects during engineering design. PBS developed a directory of metric building construction materials, supported the Metrication Construction Council of the National Institute of Building Sciences (NIBS), and contributed to the development of the NIBS "Construction Metrication Guide."

GSA's Information Resources Management Services (IRMS) issued a Federal Information Resources Management Regulation Bulletin on the use of metric measures in Federal Information Processing resource acquisitions. IRMS also included information about the use of the metric system in the Standard Solicitation Document Guide.

The Federal Property Resources Service began using dual measurements in all inspection reports, disposal plans, appraisals, environmental statements, invitations for bid, and other control documents. It also upgraded its computerized management system to incorporate both metric and nonmetric units.

GSA's Office of Public Affairs (OPA) has taken steps to inform Government, industry, and the public on its metric transition activities and to promote utilization of the metric system. The Consumer Information Center (CIC) of OPA publicized and distributed the brochure "Metric Measures Up." In the nine-month period ending June 1993, the CIC distributed almost 67,000 copies in response to requests.

The Office of Small and Disadvantaged Business Utilization is informing industry of the agency transition through counseling sessions, trade fairs, procurement conferences, and publications. A section on the use of the metric system in agency procurements was included in the publication, *Doing Business with GSA*.

International Trade Commission (USITC). International Trade Commission employees are required to acquaint themselves with the metric system and to use it in commission policies, programs and actions. Each office has a binder containing metric information and the commission's local area network provides access to a conversion program, as well as to metric-use announcements. In the commission's "Harmonized Tariff Schedule of the United States" virtually all units are metric units. As a result, virtually all U.S. international trade is conducted in metric units and all U.S. trade statistics are reported in metric units. In investigative and fact-finding reports on U.S. industries, metric use depends on whether the industries involved use metric units.

National Aeronautics and Space Administration (NASA). Following completion in 1995 of international initiatives to acquire metric capability, NASA will use the metric system for research and new development when industry can provide the required external support capabilities. All new programs should be using the metric system by 1998, except where they are directly related to past inch-pound programs.

The NASA field installations completed metric transition studies for space hardware development and for operations. In 1992, they began assessing requirements for space-quality piece parts fabricated to metric standards, and developed qualifications for high priority parts such as

threaded fasteners and fluid fittings. The field installations developed metric transition plans, bought metric measurement equipment and machine tools, and informed and trained employees on the use of the metric system.

Five of the eight Space Shuttle launches in 1992 carried hybrid payloads consisting of NASA inch-pound experiments and metric elements from foreign sources, such as the European Space Agency (ESA). In addition, there were two fully metric payloads: Eureca, a retrievable satellite built by ESA, and Laser Geodynamics Satellite, which is a cooperative program with Italy for an upper stage rocket and satellite. The engineering analyses and physical integration of the hardware for these programs expanded NASA's metric experience and ability to assess metric program support needs. Scheduled Shuttle flights for 1993 will carry five hybrid and two fully metric payloads. In 1994, seven of ten launches are scheduled to carry hybrid payloads.

NASA and the Department of Defense will report the results of a feasibility study on use of the metric system for a next-generation launch vehicle. Design began for two flight projects that use metric units for new hardware and inch-pound units for inherited subsystems. The National Aero-Space Plane project, also in cooperation with the Department of Defense, will reevaluate the possibility of metric use during 1993 when the project begins the design of a research vehicle.

The NASA small and disadvantaged business utilization program began including metric information in workshops for businesses seeking opportunities with NASA. All materials produced by the NASA education program use the metric system and NASA will work with the news media to encourage news releases about NASA's use of the metric system.

NASA management intends to use the metric system for all technical support operations, administrative functions and externally oriented activities by the end of 1995. In 1993, NASA will start the design for twelve facilities (worth $17.5 million) and selected subsystems for two flight projects that will use the metric system.

National Science Foundation (NSF). All National Science Foundation programs use metric units and discourage the inclusion of inch-pound equivalents. All actions to effect metric transition that are within the authority of the agency have been taken, without any exceptions to metric use. The remaining nonmetric activities are in procurement, and they depend on changes to federal acquisition regulations and to procedures of the General Services Administration.

Office of Personnel Management (OPM). Although the Office of Personnel Management's programs have limited measurement sensitivity, a number of actions were taken to complete implementation of metric use. A final rule was published in the *Federal Register* on June 9, 1993, that changed inch-pound measurements in regulations on environmental differentials, hazardous-duty regulations, and cost-of-living allowances. Metric measurements will be introduced into position classification standards as they are revised. OPM procurement procedures were modified to include the use of the metric system in proposed acquisitions.

Small Business Administration (SBA). The Small Business Administration reviewed all major programs and determined that no significant activities are measurement sensitive. Nevertheless, a new metric action plan was implemented, even before its formal clearance, to assure that the metric system is used in financial, procurement, and management assistance activities. SBA is gradually phasing-in metric use. Recently, a metric committee, composed of representatives from each of the SBA offices, identified metric issues and implemented appropriate actions. A metrication booklet, a metric training video, and other metric materials for small businesses were

produced and distributed. A training video for SBA staff was selected and metric awareness posters will be placed in all district offices, development centers, and resource centers.

Tennessee Valley Authority (TVA). Most Tennessee Valley Authority programs currently use nonmetric units because they depend on customer requirements or they involve existing facilities. Nevertheless, a variety of activities are underway that will introduce metric use into all of the authority's operations. Although the large majority of current design projects are to modify existing facilities, both metric and nonmetric units ("dual units") were used for a substation metering project in Mississippi, and both units will be used in plans for a new substation in Georgia and a new transmission line. Several planned buildings will be designed and constructed using metric units only. In an effort to increase customer understanding, displays on the use of the metric system are planned for visitor centers at TVA's nuclear power plants. TVA publications are being converted to metric units as they are revised. Also, recreation plans and maps will be converted to dual units as existing supplies are exhausted.

TVA purchasing officials surveyed approximately 2,000 of its preferred suppliers for information on the availability of metric products. At present most procured items are specified in nonmetric units, but use of the metric system is increasing. Some office supplies are now ordered using metric units, and some fleet vehicle components are specified in metric units.

TVA's nuclear power plants, plant designs, and replacement components will not be converted to the metric system because of safety considerations and the need to meet stringent regulations. However, steps will be taken to enhance the capability for metric procurements. These include changing TVA item identification code descriptions and procuring metric products to the greatest extent possible.

References and Notes

[1] *Preferred Metric Units for General Use by the Federal Government*, Federal Standard 376. The current version, 376B, dated January 27, 1993, is available from the General Services Administration, Specifications Section (3FBP-W), Suite 8100, 470 L'Enfant Plaza, S.W., Washington, DC 20407.

[2] The modern metric system is the International System of Units or SI (from the French "Le Systeme International d'Unites," which is abbreviated SI). For purposes of international trade, the metric system is more than just SI. It includes the product standards and preferred sizes accepted by industries and governments throughout the world.

[3] *Metric Transition Plans and Activities of Federal Government Agencies,* National Institute of Standards and Technology, Interagency Report 4911 (August 1992). (Available from the National Technical Information Service (NTIS), Springfield VA, 22161, Order Number PB92-222249.)